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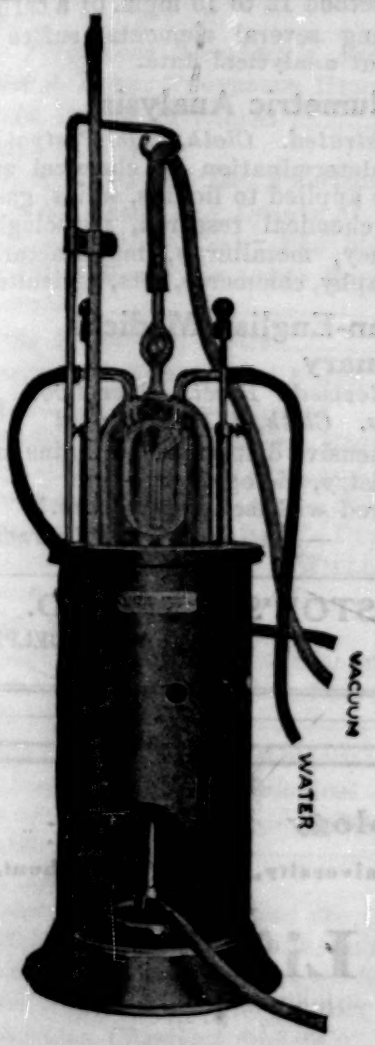

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BIOLOGICAL ABSTRACTS

ON November 26 of last year the secretary of the Union of American Biological Societies submitted to American biologists individually the report of the Joint Publications Committee of the Union and of the Division of Biology and Agriculture of the National Research Council. This report[1] outlined a tentative plan for providing biologists with a comprehensive abstracting and indexing service. In sending this report the secretary made provision for an expression from biologists individually on the main issues involved—the plan itself and the individual support through subscriptions that it might expect if established. The secretary, Dr. I. F. Lewis, University of Virginia, has requested the Joint Publications Committee to study and report on the about 4,500 replies received. The following report is, therefore, submitted by the Joint Publications Committee.

Before reporting on the referendum, it will be well to recall briefly the events and considerations which led up to the proposal to develop a comprehensive biological abstracting service.

In 1921 a conference representing the American Society of Naturalists, American Society of Zoologists and Botanical Society of America considered the question of providing adequate organization facilities for geneticists, without at the same time adding to the already large number of independent biological societies and thereby increasing still more the difficulties of concerted effective effort in larger problems of importance to biologists generally. Following the suggestions of the conference, sections in genetics with common officers were created in the American Society of Zoologists and the Botanical Society of America. However, the conference recognized that with the inevitable continued diversification similar necessities would arise from time to time; also that important problems concerning biologists generally were already demanding attention. It was, therefore, suggested that representatives of the various national research biological societies discuss the advisability of establishing a union. The Division of Biology and Agriculture of the National Research Council was appealed to as a disinterested body to call a conference. Such a gathering was held at the Toronto meeting of the American Association for the Advancement of Science in 1921 and participated in by representatives of nearly a score of societies. Out of this meeting grew a second request to the National

[1] SCIENCE, September 28, 1923, pp. 236–239.

Research Council, this time to call essentially an adjourned meeting of the society representatives for more extended and detailed consideration of the union proposal. This second gathering occurred in Washington, April, 1922,[2] where action was taken resulting a year later in the official establishment of the Union of American Biological Societies, to which by formal action the following societies are now adhering (others have been invited to adhere):

American Association for the Advancement of Science—Sections F, G, N and O
American Association of Anatomists
American Association of Economic Entomologists
American Dairy Science Association
American Genetic Association
American Physiological Society
American Phytopathological Society
American Society of Agronomy
American Society for Horticultural Science
American Society of Naturalists
American Society of Zoologists
Botanical Society of America
Ecological Society of America
Society of American Foresters
Society of American Bacteriologists
Entomological Society of America

Although at both the Toronto and Washington conferences consideration was given to a variety of important problems, there is little doubt that the possibility of greatly improved abstracting and indexing services in biology through strong united effort was largely responsible for the general sentiment favoring the establishment of a union. At the latter conference, a year in advance of the official consummation of the union, a Publications Committee was appointed with instructions to function jointly with a similar committee appointed almost simultaneously by the Division of Biology and Agriculture of the National Research Council. Subsequently, the American Association for the Advancement of Science acting on the invitation of the Union and the National Research Council, arranged for representation on the Joint Publications Committee.

At the organization meeting of the council of the Union in April, 1923, the Publications Committee made the report to which reference has already been made in the opening paragraph. It will be recalled that this report outlined a project for publishing a single comprehensive biological abstracting journal under the auspices of the Union of American Biological Societies and which looked forward to possible eventual uniform support from members of the societies comprising the Union on somewhat the basis on which all members of the American Chemical Society automatically support *Chemical Abstracts* through their membership dues. The latter arrangement, as is well known, has been notably fruitful in providing chemists with enviable abstracting and indexing sevvices at phenomenally low cost to the individual.

Although this report was approved by the council of the Union and by the Division of Biology and Agriculture of the National Research Council, it was felt that biologists individually had not had the opportunity of examining the proposal and of expressing themselves concerning it. Therefore, as already stated, it was sent by the secretary of the Union to about 6,700 American biologists individually, who, after examining the report, were invited to express themselves on the following two questions and to submit in addition suggestions or comments:

(1) Do you favor the project of publishing a single comprehensive biological abstracts journal?

(2) Without committing yourself finally, is it likely that you would support such a journal by subscription?

The nearly 4,500 replies received distribute themselves, in percentage, as follows:

	Question 1	Question 2
Yes	84.3 per cent.	55.99 per cent.
No	7.9 " "	18.8 " "
Probably		5.5 " "
Undecided	1.4 " "	
No vote	6.2 " "	5.2 " "
Through institution		2.9 " "
Total	99.8 per cent.[3]	88.39 per cent.[3]

By societies, these replies distribute themselves approximately as follows (owing to the extensive overlapping in membership between many of the societies the sum of the totals for the several societies exceeds the total number of individual replies received):

	Question 1		Question 2	
	Yes[4]	No[4]	Yes[4]	No[4]
American Society of Agronomy	238	17	167	82
American Association of Anatomists	215	8	184	30
American Society of Animal Production	118	15	102	29
Society of American Bacteriologists	578	47	480	125
Botanical Society of America	519	53	449	131
American Dairy Science Association	99	11	101	32

[2] SCIENCE, September 29, 1922, pp. 359–361.

[3] Lack of space prevents printing the numerous additional categories resulting from votes qualified in one way or another; hence the total percentages here recorded are less than 100.

[4] To conserve space, only affirmative and negative votes are tabulated.

	Question 1		Question 2	
	Yes	No	Yes	No
Ecological Society of America	378	29	309	79
American Association of Economic Entomologists	342	32	268	96
American Entomological Society	266	31	308	83
American Physiological Society	162	24	126	61
American Society of Biological Chemists	121	24	89	56
American Society of Experimental Therapeutics	46	8	24	23
American Society of Experimental Pathology	17	3	12	18
Society of American Foresters	268	31	124	206
American Society for Horticultural Science	121	16	92	38
American Society of Mammalogists	238	27	171	89
American Society of Naturalists	255	22	207	54
American Phytopathological Society	309	42	278	62
American Society of Zoologists	281	9	269	19

In addition to this unexpectedly large response, the replies contained many interesting comments, suggestions and questions. A large number of these augment in one way or another the affirmative replies to one or both questions, besides offering many thoughtful suggestions. The remainder, which fall logically into groups, offer certain very natural and pertinent questions and criticisms. The committee regards it as essential to present those considerations about which the questions and criticisms chiefly center and which in nearly every case are also those to which the joint committee gave especial attention before formulating its report.

(1) *Concern for the existing abstracting services if a competing service is inaugurated.* The difficulties besetting many of the services in English have in a large measure furnished the stimulus for the committee's efforts; this is especially true inasmuch as the very existence of some is threatened. The committee is, therefore, glad of the opportunity to make it clear that there has been no thought of merely setting up a rival publication; the effort has been to find a more adequate and enduring basis for this important work, which in most cases the existing agencies are struggling to perform under very trying circumstances.

From the evidence at hand the committee concluded in its report that this basis for biology would most likely be furnished by a single, comprehensive, well-supported abstracting and indexing service. From what has been said, and—considering for the moment merely the American efforts—from the fact that many of the societies comprising the Union of American Biological Societies are already conducting or cooperating in abstracting journals, it is evident that the establishment of a merely competitive service by the Union is inconceivable. If, on the other hand, the existing services should find the proposals of the Union sufficiently sound and practicable in providing more adequately and permanently for the work which they severally are doing, a voluntary cooperative merger of sufficient magnitude might result which would prepare the way for the inauguration of the more comprehensive service, provided always the necessary financial support to guarantee editorial excellence for at least a considerable period of years is assured, as stipulated in the committee's report. Although the committee is not authorized to speak for the bodies conducting existing abstracting services it may be mentioned that several of these have already expressed their willingness to effect a merger.

It is, of course, thoroughly recognized that some of the services in English, as in other languages, have objectives of such character, render such special or unique services or are by statute or other provisions so obligated that their independent continuance would not only be entirely justified but highly important. With these as well as with other agencies, irrespective of language, every effort should be made to arrange mutually helpful cooperative relations should the more inclusive service be inaugurated.

(2) *Separate journals for botany and zoology preferred* (using the terms in the broad sense of plant and animal science). The committee gave much attention to the development of separate services along the lines of this traditional division of biology. In such fields as taxonomy, morphology, anatomy, etc., such a division presented no marked difficulties, except in the Protista. However, serious difficulties were encountered in certain fields in which such a division would cleave through the very center of the subject, notably in genetics, cytology, evolution and other aspects of general biology; to an increasing degree this is true also for physiology, pathology, ecology, etc. On the whole, therefore, the division of biology into plant and animal did not commend itself to the committee.

(3) *Separate journals for the various more special fields preferred.* This alternative naturally suggested itself, especially after it appeared inadvisable to divide the field into plant and animal science. It is, of course, the procedure on which biologists have already embarked to a considerable extent, as evidenced by the scores of listing and abstracting journals or sections of journals which concern themselves with more or less restricted fields. The invaluable services which these services of narrower scope are performing led the committee to study also this proce-

dure as possibly furnishing a basis for working out plans to provide approximately all biology with adequate abstracting and indexing facilities. As was pointed out in the committee's report, three closely connected major practical difficulties presented themselves:

(a) In order that an abstract journal of narrow scope may meet the needs of its constituents it finds itself under the necessity of reaching extensively into neighboring fields. The result is a very extensive duplication with attendant increased costs.

(b) The special abstracting journals, because restricted to limited fields, can in most cases command but relatively limited numbers of subscribers with the result that even though the subscription rate be high it is usually considered fortunate if the income secured is sufficient to meet the costs of printing and distribution. In those relatively rare cases in which such income contributes anything to the editorial expenses, the amount is largely insufficient to provide at all adequately and continuously for the large amount of exacting abstracting, editorial and bibliographic and clerical work involved. The result is that

(c) all or nearly all the work attendant upon the production of such journals is on a volunteer basis. The committee recognizes fully the very great value of these volunteer services and that this basis provides certain advantages in esprit de corps, devoted services and often elevated standards which should be carefully preserved in any modification of present practice. But it is usually inevitable that the burden must be borne by those who can with difficulty and sacrifice give but limited attention to the tasks, since their responsibilities necessarily lie mainly in other directions. Under these circumstances it is not surprising that discontinuity has been rather characteristic of these services of narrower scope; also that usually it has been impossible for them even to approximate their objectives. Exception must here be made of a few services, especially in certain applied fields, which through special support have been able to render able service consecutively for longer periods of time. Thus, in looking the biological field over in general, it becomes obvious that adequate provision exists in only a very fragmentary way, and that frequently the services devoted to the less immediately applied aspects of biology have had greatest difficulty in maintaining themselves.

The alternative which in the judgment of the committee offers the best prospect for improvement is a single comprehensive service, not only because it would effect marked savings through avoidance of costly duplication and secure the well-recognized advantages to the subscriber of large editions, but also because efforts to secure adequate financial support to guarantee editorial excellence give greater promise of success if sponsored by the larger and responsible group of biologists which would be served by such an enterprise, a group which is already largely represented in the Union. The committee does not, however, favor the plan of a single comprehensive service solely on financial grounds. It seemed to offer also an excellent opportunity to insure the healthy interaction of the various aspects of biology without at the same time jeopardizing its usefulness in restricted fields. It is, of course, realized that equally important is the interaction of biology with aspects of the other major sciences, such as chemistry, physics, geology, psychology. But boundaries must on practical grounds be established, the approximate location naturally being influenced by the general scope adopted by services in the other major sciences. Obviously no lines can be drawn which will not prove inconvenient to some.

(4) *Only part of the contained material would be of interest to the individual.* Unless the scope is a very narrow one this observation from the scientist's point of view applies more or less to all literature aids. Generally approved groupings of materials in subject-matter sections accompanied by convenient tables of contents should provide, as elsewhere, the necessary facilities for consulting the current material of interest individually with the same ease as in the issues of journals of more restricted scope.

(5) *Publication would be too bulky.* In considering this aspect of the problem the committee early inquired into the experience of *Chemical Abstracts*, which issues annually approximately as many pages of abstracts and indexes as the committee estimates would be required for an equally complete service in biology. The committee did not find that the matter of bulk in this highly successful and valuable journal had ever emerged as a serious problem. The committee has further investigated printing papers and, as previously reported, finds available very satisfactory thin papers. There would be no difficulty in supplying an edition on such paper to those subscribers who might prefer it.

• • • •

Discussions have also been held in fifteen or twenty biological centers, where almost without exception the general plans of the Union met with practically unanimous favor.

• • • •

The executive committee of the Union thus felt it could with the approval of biologists generally proceed to the next step, namely, endeavor to secure the necessary financial support for at least a consid-

erable period of years to guarantee editorial excellence; it will be recalled that such provision is basic in the proposal. These endeavors, with the active support of the National Research Council, are under way.

Finally, with American interest and cooperation assured, efforts will be made to secure international participation, without which no complete service can be rendered.

HERBERT OSBORN,
Representing the American Association for the Advancement of Science

A. PARKER HITCHENS,
D. R. HOOKER,
C. A. KOFOID,
I. F. LEWIS,
Representing the Union of American Biological Societies

E. D. BALL,
C. E. MCCLUNG,
J. R. SCHRAMM,
A. F. WOODS,
Representing the Division of Biology and Agriculture of the National Research Council

M. J. GREENMAN,
Member at Large.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

PERMANENT SECRETARY'S ANNUAL REPORT

THE following paragraphs report on the most important matters that have had the attention of the permanent secretary's office during the year ending September 30, 1924.

PUBLICATIONS

Two special issues of SCIENCE (for January 25 and February 1, 1924) were devoted to brief reports of the last annual meeting, which was held in Cincinnati. A new edition of the booklet of information was published in the spring, and 25,000 copies of it have been sent to prospective members. A smaller booklet, on the organization of the association, was published and copies were sent to those interested in linguistic sciences.

Plans and arrangements have been completed for the preparation of the next volume of the Summarized Proceedings, which is to contain the new directory of members of the association. The volume is to be published next fall.

ORGANIZATION

Philological Sciences: The special committee on philological sciences (authorized at the last annual meeting) has been active throughout the year, and a program on linguistic sciences has been prepared for the fifth Washington meeting. The movement to organize these sciences in the association continues to arouse interest among philological workers.

Divisions and academies: The arrangements with the two divisions and with the local branch, as well as with the twelve affiliated academies of science, have been continued. The association has paid to these organizations the following amounts for the last four fiscal years:

	1921	1922	1923	1924
Pacific Division	$1,007	$1,126	$1,133	$1,339.00
Southwestern Division	131	149	224	242.00
Local Branch (State College, Pa.)	—	27	29	30.50
Affiliated Academies	1,141	1,328	1,440	1,467.00
	$2,279	$2,630	$2,826	$3,078.50

It will be recalled that these payments are made as allowances to aid the work of these organizations. The divisions and the affiliated academies each receive one dollar a year for each of their members who pays dues in the association. The local branch receives similar allowances of fifty cents. Several academies of science have applied for affiliation, but no action has yet been taken on their applications, pending the decision of questions regarding the entire arrangement of affiliated academies. The finances of the association will not permit further considerable increase in the annual allowances to the affiliated academies unless the arrangement of affiliation may be made to result in more pronounced annual increases in association membership. It will be remembered that the current expenses of the association must be met from the annual dues contributed by members and that the portion of these contributions that is available for this use after purchasing the journal subscription is $2 for each member in good standing. In the case of division and affiliated academy members half of the two-dollar balance is paid to the division or academy, leaving only $1 for the account of current association expenses. In most instances the academies credit the dollar allowances received from the association to annual academy dues of their members, and the association allowance is consequently received by the academy in lieu of an equal fund that would otherwise be received by the academy from its association members if they were to pay academy dues. The academy allowance for

the fiscal year just ended ranges in amount from $302 to $13 and the number of new association members received through the academies during that year ranges from 12 to 1. During the last four years the association has paid to the affiliated academies in allowances $5,277 and it has received 285 new members through academy activities during that period. Association entrance fees received from new members joining through affiliated academies are turned over to the academies. This whole question of academy affiliation clearly requires serious attention and it is hoped that some modifications in the arrangements may be decided upon which will retain all the present mutual advantages and will permit the association to bear its share of the cost of the excellent work that is being carried forward by the academies of science.

Fellowship in the association: The problem regarding the qualifications necessary for election to fellowship in the association has received the attention of two successive committees during the fiscal year just ended, as well as being considered by the executive committee. Because the wording of the by-laws is somewhat vague in this respect the section committees have experienced some difficulty in caring for recommendations for election to fellowship and they have asked that fellowship qualifications be more clearly defined. This problem is an important one in the organization of the association, and a feasible solution should be worked out in the near future. The by-laws state that all members who are professionally engaged in scientific work shall be considered eligible to fellowship and that other members shall be so eligible if they have advanced science by research. The primary difficulty arose in attempting to interpret the phrase regarding professional engagement. For ready reference, Article II, Section 4, of the By-Laws and Rules of Procedure of the association, is here reproduced.

All members who are professionally engaged in scientific work, or who have advanced science by research, may be elected by the council to be fellows on nomination or on their own application. This qualification is understood to have been met by members of affiliated societies having a research qualification.

AFFILIATION OF SOCIETIES WITH THE ASSOCIATION

The following named organizations have become affiliated with the association during the fiscal year just ended:

American Electrochemical Society (affiliated with Section C), two representatives in A. A. A. S. council.

American Ceramic Society (affiliated with Section M), one representative in A. A. A. S. council.

There are now eighty-one associated organizations, of which forty-five are affiliated.

MEMBERSHIP

The membership of the association has increased remarkably during the fiscal year here considered. The number of members in good standing increased from 10,787 (September 30, 1923) to 12,130 (September 30, 1924), while the total number of names on the roll increased correspondingly from 11,704 to 12,887. This gratifying feature of our work is probably partly due to the remission of entrance fees during 1924 to all new members who were already members of some affiliated society. It is doubtless largely due, also, to a thorough circularization of all members of affiliated societies who were not already association members. Letters of invitation were sent to 65,725 persons. Details concerning membership are shown in the accompanying table.

Membership in the Association,
September 30, 1923, to September 30, 1924.

	Sept. 30, 1923	Sept. 30, 1924	Increase (+) or Decrease (−)
Sustaining members	3	3	
Life members	373	383	(+) 10
Annual members, paid-up	10,411	11,744	(+) 1,333
Total in good standing	10,787	12,130	(+) 1,343
Members in arrears for 2 years	407	326	(−) 81
Members in arrears for 1 year	510	431	(−) 79
Total enrollment	11,704	12,887	(+) 1,183

Gain in membership, October 1, 1923, to September 30, 1924:		
Reinstatements	15	
New members (3 Life, 1,956 Annual)	1,959	
Total gain		1,974
Loss in membership, October 1, 1923, to September 30, 1924:		
Dropped for non-payment of dues	407	
Resignations	263	
Deaths	121	
Total loss		791
Net gain, October 1, 1923, to September 30, 1924		1,783
Transfers from *annual* membership to *life* membership	20	

The growth of the association, as regards membership, since September 30, 1920, is shown by years in the following tabulation.

Growth in Membership

	Sept. 30, 1920	Sept. 30, 1921	Sept. 30, 1922	Sept. 30, 1923	Sept. 30, 1924
Members in good standing:					
Actual no.	10,002	10,160	10,566	10,787	12,130
Percentage of total enrollment	87.42	87.99	90.73	92.17	94.13
Percentage increase during preceding year	——	1.58	4.00	2.10	12.45
Total enrollment:					
Actual no.	11,442	11,547	11,646	11,704	12,887[1]
Percentage increase during preceding year	——	0.92	0.86	0.50	10.11

It is specially interesting to note that the number of members in good standing at the end of the fiscal year represented only 87 per cent. of the total enrollment on September 30, 1920, while it represented 94 per cent. on September 30, 1924.

FINANCIAL AFFAIRS

The permanent secretary's financial report for the fiscal year 1923–24 will be published in SCIENCE after presentation to the council at the approaching Washington meeting. The total disbursements for the year amounted to $66,737.15 and left an available balance of $3,161.17 on September 30 last. Besides this there are, as liabilities, (1) the fund for the study of the place of science in education (received from the Commonwealth Fund, of New York) and (2) the publication fund. The publication fund will be used in 1925 for the publication of the new volume of Summarized Proceedings.

The same anonymous donor who made possible the $1,000 Cincinnati prize has placed in the hands of the association the sum of $5,000, to be used for five similar prizes, one each year for five years. This fund is in the treasurer's hands.

COOPERATION WITH THE BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

No summer meeting of the association was held in 1924. Instead of holding the meeting that had been contemplated it was decided to accept a cordial invitation from the British Association inviting all members of the American Association to attend the annual meeting held in Toronto from August 6 to 13. The permanent secretary's office was supplied with copies of the preliminary program of the Toronto meeting, and a copy was mailed to each member of the American Association about June 17. The apparatus for the visible directory, used at our recent annual meetings for maintaining a readily consulted list of those in attendance, was loaned to the local committee at Toronto and was employed at the Toronto meeting. A large number of our members were in attendance. At the close of that meeting the British Association passed a vote of thanks to the American Association for its cooperation, as well as one to the local committee at Toronto. The resolution expressing appreciation of the cooperation of the American Association reads as follows:

Resolved, that the best thanks of the British Association be accorded to the American Association for the Advancement of Science for their cordial and effective cooperation.

PREPARATIONS FOR THE FIFTH WASHINGTON MEETING

Preparations for the fifth Washington meeting are well advanced. The local committees are showing great interest and efficiency. Two evening sessions for Monday and Tuesday have been arranged. The first is the opening session and the second is for the Sigma Xi lecture by Dr. Frederick Fuller Russell. Thirty-nine societies are planning to meet with the association at Washington.

All members residing in Washington and vicinity have been asked to make financial contributions of $5 or more toward the extra expenses of the meeting.

The names of members of the local committees and of the section representatives for the meeting have been published in SCIENCE, for August 29, 1924.

BURTON E. LIVINGSTON,
Permanent Secretary

WILLIAM A. LOCY— 1857–1924

ON the ninth of October, 1924, American scholarship lost one of its most genial spirits by the unexpected death of Professor William A. Locy, who, for more than a quarter century, had filled the chair of zoology in Northwestern University.

William Albert Locy was born, of Dutch ancestry, at Troy, Michigan, on the 14th of September, 1857. The family had emigrated from Holland in 1651, settled in Dutchess county, New York, and later removed to the west. Graduating from the University

[1] The total enrollment has continued to increase; it was about 13,050 on November 1, 1924.

of Michigan, in 1881, in the days when this institution was the outstanding one among all those west of the Alleghanies, he remained with his *alma mater* as a graduate student. His biological tastes were already well marked.

It was in 1885 that he was married to Miss Ellen Eastman, daughter of Dr. Joseph Eastman, of Flint, Michigan. They have two sons, one engaged in commercial work in Kansas City, the other a surgeon in the United States Navy.

Dr. Locy's earliest biological contribution is dated from Mt. Morris College, Illinois, where he had as colleagues Professors Fernando Sanford and Jeremiah W. Jenks. During the year 1884–5 he held a fellowship at Harvard, and completed, in the laboratory of Dr. Mark, a noteworthy embryological investigation on "The development of *Agelena naevia*." In the autumn of 1887 he accepted the chair of biology at Lake Forest University and remained there for nine years. His work, at this period, had to do with "The embryonic development of the elasmobranchs," "The derivation of the pineal eye," "The structure and development of the vertebrate head." This last mentioned research on cranial morphology was accepted by Professor C. O. Whitman as a thesis for the degree of doctor of philosophy at the University of Chicago in 1895. The University of Michigan, in 1906, conferred upon him the honorary degree of Sc.D.

His contributions to zoological research evidenced great power of observation, extreme care, an active scientific imagination and strong sense of the fundamental. He therefore engaged in no petty researches, and the few that he published include at least two that are landmarks in their respective fields. His study of the embryonic neuromeres of the fore and mid-brain of fishes stands in the fore-front of investigation on neural metamerism, and in the center of the controversy that still continues on this subject. His study of the *nervus terminalis* in Elasmobranchs, while not contributing an entirely original discovery of this addition to the classical roster of cranial nerves, was nevertheless contributed so early and was so thorough as to dominate and become the standard for all later investigations.

Two different interests are clearly marked in the work of Locy, shortly after he came to Northwestern University, in the spring of 1896, to succeed Professor E. G. Conklin. The first of these interests shows itself in his continued attention to the developmental history of the sense-organs: the other is a new interest in the developmental history of the science of biology. The former is typified by his paper on "Accessory optic vesicles in the chick embryo," another on "A newly recognized nerve connected with the forebrain of Selachians," a third on "The fifth and sixth aortic arches in birds and mammals," and also by various researches made by graduate students, working in Locy's laboratory: the latter current of thought is marked by a series of historical papers, beginning with sketches of "Malpighi, Swammerdam and Leeuwenhoek" in the *Popular Science Monthly* (1901). In later years, these historical interests, first awakened by Whitman, came to absorb almost his entire leisure time and energy. In 1908 appeared his collection of historical portraits, entitled "Biology and Its Makers," a non-technical work, which has been well received in English-speaking countries, has been translated into German, and has met an enthusiastic reception at the hands of students. Ten years later came a volume on the "Main Currents of Zoology," a well-balanced treatment of how we came to know what we have learned about animal life, an elementary discussion which is marked throughout with fine perspective and with precision of statement. At the time of his death, he was just completing the manuscript of a book, tracing "The Rise of Biology," from the earliest times up to the beginning of the present century, assigning to the various steps and stages, in biological thought, their proper relative importance.

When the American Association for the Advancement of Science decided to create a new section devoted to the history of science, Locy was chosen as the first president of the section. The work which he has thus accomplished, in conjunction with that of Sarton, Libby, Henderson, Karpinski and others, represents for America much the same progress as that which has been made in England by Singer, Marvin, Shipley and Allbutt. In 1915 the American Society of Zoologists elected him to its presidency. From 1901 to 1903 he was trustee of the Marine Biological Laboratory, at Woods Hole, Mass.

At various times, Locy's teaching was interrupted by trips to Europe, the last of which he and his wife made during a sabbatical leave in 1902–3, on which occasion several months were spent in research at the zoological station in Naples. Earlier, in 1891, he had studied physiology in Berlin, where he embraced the opportunity of hearing DuBois-Reymond.

Not the least important part of Locy's work was that which he accomplished through the inspiration of and by the assistance of his graduate students. He was always full of enthusiasm and vigor for any genuine effort to extend the borders of human knowledge. His scholarship was of a type which is comprehensive, accurate and exacting. To the most elementary students he also gave his best and taught the introductory course in general zoology as long as he lived. In addition to these qualities,

he possessed the saving grace of humor and a geniality of spirit which made him a most enjoyable member of many social groups, such as the University Clubs of Evanston and Chicago and the Chaos Club of Chicago.

By his untimely death America has lost a noteworthy scholar and many of us a loyal, generous and warm-hearted friend.

HENRY CREW,
FRANK R. LILLIE

SCIENTIFIC EVENTS

REDUCED RAILWAY RATES FOR NON-MEMBERS ATTENDING THE WASHINGTON MEETING OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

THE privilege of reduced railway rates that has been secured for the approaching Washington meeting of the American Association and associated organizations is not to be confined to members of the association itself. The reduced rates are to be available to all members of any associated society, whether the society meets with the association or not, and also to all members of every other society that meets with the association at this time.

Those who intend to come to the Washington meeting from outside of the immediate vicinity should state that they are going to attend the meeting of the American Association for the Advancement of Science, even though they have not yet become members of that organization, when they purchase their tickets to Washington. Those who are not yet members will be regarded as guests of the association. The names of the numerous other organizations that are planning to meet with the association in the approaching convocation week will not appear on the lists of the railway agents and should not be mentioned when tickets are purchased.

A certificate on the standard certificate form (*not a receipt*) is to be secured from the railway agent from whom the going ticket to Washington is bought. This railway certificate is to be left at the validation desk in the registration room (in the New Willard Hotel, Pennsylvania Ave. and 15th St., N. W.), as soon as possible after arrival in Washington. It will be endorsed by the agent of the American Association and validated by the railway agent, after which it will be returned to the owner. Upon presentation of a properly endorsed and validated certificate, the ticket agent at Washington will sell a one-way returning ticket for half the regular one-way fare. Thus the total railway fare paid for both going and returning will amount to one and one half times the regular one-way fare for the distance traveled. This is the same arrangement as the one in force at recent annual meetings. It applies for practically all stations in the United States and also in Canada with the exception of those on lines of the Western Canadian Association (in Alberta, Saskatchewan, Manitoba and Ontario west of Port Arthur and Armstrong). Those coming to the meeting from stations outside of the region of reduced rates should purchase round-trip tickets to some point within the region and thence proceed as above, or else they may purchase round-trip tickets to Washington (with generally less reduction in fare).

A list of organizations planning to meet with the association in Washintgon this year appeared in SCIENCE for August 29, 1924, page 193. The following names should now be added to the list there published:

American Fern Society.
American Nature-Study Society.
Wild Flower Preservation Society.
Phi Sigma Biological Research Society.
American Political Science Association.
History of Science Society.
Crop Protection Institute.
Society of American Foresters.
American Federation of Teachers of the Mathematical and Natural Sciences.
Gamma Sigma Delta Society.
Sigma Delta Epsilon Graduate Women's Scientific Fraternity.

Besides the fifteen sections of the association there will be, in all, forty-four societies meeting with it this year. An exceptionally satisfactory meeting is anticipated.

BURTON E. LIVINGSTON,
Permanent Secretary

ENDOWMENT FUND AND GRANTS OF THE CARNEGIE CORPORATION OF NEW YORK

PRESIDENT F. P. KEPPEL submitted his first yearly report to the trustees of the Carnegie Corporation at the annual meeting of the board on November 20. According to his report and the report of the treasurer, on October 1, 1923, the assets of the corporation stood at $133,659,024.17, of which $124,936,275.44 constituted the value of the original endowment, and the remainder cash and securities accumulated out of income. During the year, the income of the corporation amounted to $7,397,714.13.

In effect, the trustees are responsible for two trusts: one "for the advancement and diffusion of knowledge and understanding among the people of the United States" and one for similar purposes in Canada and other British dominions. As regards the former trust, the corporation during the past year paid out $12,948,619.10. Of this total $12,349,110.72 was based upon grants voted by the corporation in previous years.

For the latter fund, the corresponding figures are as follows: amount paid out—$89,399.29, of which $29,500.00 was based upon grants voted in previous years.

During the same period, grants were voted from income of the principal fund, amounting to $2,448,-540.94, of which $1,615,599.98 were absolute and $808,940.96 were conditional. For the fund applicable elsewhere than in the U. S. A., the total of grants was $757,575.01.

The list of grants is headed by the Carnegie Institute of Pittsburgh which received the largest single grant in the history of the corporation, amounting to $16,327,376.25. Of this sum, $8,000,000 was paid over to the Pittsburgh authorities in June, 1924. Other large grants upon which reports of progress are made, together with the amount of each grant, are as follows: The National Research Council and the National Academy of Sciences, $5,000,000; educational institutions in Eastern Canada, $3,000,000; Institute of Economics, $1,650,000; National Bureau of Economic Research, $150,000; Institute for Research in Land Economics and Public Utilities, $62,-500; Food Research Institute, located at Stanford University, California, $704,000; American Law Institute, engaged in formulating a restatement of the law, $1,075,000; the Johns Hopkins Medical School for an out-patient building and diagnostic clinic, $2,-000,000; New York Academy of Medicine, $1,000,000.

Among the more important grants made during the current year are included the following: American Library Association, for general support and for the conduct of certain special activities, $164,100; Carnegie Endowment for International Peace, to aid in publishing an economic and social history of the world war, $350,000; Harvard University, for the training of personnel for museum service, $100,000; Institute of International Education, $182,500; Society for the Promotion of Engineering Education, $108,000; University of California, for a study of pyorrhea and its possible relation to other human maladies, $85,000; National Institute of Public Administration, $40,000; Committee on Legal Aid Work, $85,000; Union University, for the Albany Medical College, $52,500; Junior College, St. John's, Newfoundland, $75,000, and University of King's College, for endowment, $600,000 (part of $3,000,000 gift for education in Eastern Canada); and to various agencies for research in insulin, $43,000.

BARRO COLORADO ISLAND LABORATORY

THE United Fruit Company has renewed its generous offer of last year of a small number of passes on its boats between New York and Colon for properly accredited scientific investigators who wish to work at the Barro Colorado Island Laboratory.

The company offers to provide five round-trip passes in 1925 to workers properly accredited to the National Research Council by the executive committee of the Institute for Research in Tropical America. These passes do not include meals, which are charged for at an inclusive rate of $5 per day.

Applications for such passes should be addressed to Dr. Thomas Barbour, acting chairman of the executive committee of the Institute for Research in Tropical America, in care of the National Research Council, Washington, or at the Museum of Comparative Zoology, Cambridge, Massachusetts.

VERNON KELLOGG,
Permanent Secretary,
National Research Council

THE WILMER FOUNDATION

TRUSTEES of Johns Hopkins institutions have joined the Wilmer Foundation in a campaign to establish a $3,000,000 foundation for the endowment at Baltimore of an eye hospital and school which, would be the first of its kind in America, and the equal of any in the world.

The plan is for an institution for the study and treatment of diseases of the eye, for research into causes of blindness and kindred ailments and for the education of American specialists, who heretofore have had to attend European universities and clinics to perfect themselves for the practice of ophthalmology.

Forty free beds are to be endowed. Additional facilities are to be installed for the treatment of patients who lack the means to pay for hospital care.

The institution will be conducted as a unit of the Johns Hopkins University's Medical School and Hospital. It will bear the name of Dr. William Holland Wilmer, of Washington, a noted ophthalmologist, and will be directed by him, according to Dr. Frank J. Goodnow, president of Johns Hopkins University, in whose name announcement of the project was made.

Dr. Goodnow said that it would cost about $1,000,-000 to erect and equip the Wilmer Institute. Another $1,000,000 will be required to endow the free beds and other charitable features and the additional $1,000,000 to endow the teaching of ophthalmology and to pay members of the staff, who also will be officers of Johns Hopkins Hospital and members of the medical faculty.

The nucleus of the fund will be $200,000, contributed by friends and patients of Dr. Wilmer. Several years ago they incorporated the Wilmer Foundation for the endowment of an institution which would give his abilities greater scope. When trustees of this fund learned that Johns Hopkins contem-

plated an institute of ophthalmology it was arranged to make it a joint undertaking.

Henry Breckinridge, of New York, secretary-treasurer of the Wilmer Foundation, has announced plans for increasing the original $200,000 to nearly $500,000. The first $1,000,000 will be sought from the General Education Board, founded by Mr. Rockefeller. The trustees of Johns Hopkins have not yet taken final action.

THE ELLIOT MEDAL FOR 1924

NOMINATIONS for the award of the Elliot Medal for the year 1924 should be addressed to the secretary of the National Academy of Sciences, Washington, D. C. The terms of the award in the Daniel Giraud Elliot deed of gift are as follows:

> One such medal and diploma shall be given in each year and they, with any unexpended balance of income for the year, shall be awarded . . . to the author of each paper, essay or other work upon some branch of zoology or paleontology published during the year as in the opinion of the . . . judges in that regard shall be the most meritorious and worthy of honor. The medal and diploma and surplus income shall not, however, for more than two years successively, be awarded for treatises upon any one branch of either of the sciences above mentioned. . . . The medal and diploma and surplus income may be conferred upon naturalists of any country and . . . no person acting as judge shall be deemed on that account ineligible to receive this annual gift . . . if, in the opinion of his associates, he shall . . . be entitled to receive them.

The treasurer of the academy reports that the Elliot Fund has increased since the original donation of $8,000. The best idea of the kind of work for which this award was designed may be gathered from the résumé of previous awards:

1917, Frank M. Chapman for his "Distribution of bird life in Colombia."

1918, William Beebe for his "Monograph of the pheasants," Volume I.

1919, Robert Ridgway for his "Birds of north and middle America," Part VIII.

1920, Othenio Abel for his "Methoden der paleobiologischen Forschung."

1921, Bashford Dean for his "A biblography of fishes," Volume I.

1922, William Morton Wheeler for his "Ants of the American Museum Congo expedition."

1923, Ferdinand Canu for his "North American later Tertiary and Quaternary Bryozoa."

Unlike other awards, the Elliot Medal is always for a special piece of research in zoology or paleontology completed and published in the year for which the award is made. The committee particularly desires that nominations shall be received for foreign as well as for American work during the year 1924. Recommendations should be accompanied by a printed copy of the research submitted for consideration.

HENRY FAIRFIELD OSBORN,
Chairman, Committee on Award

SCIENTIFIC NOTES AND NEWS

PRESENTATION of a bust of Admiral George Wallace Melville will be made to The American Society of Mechanical Engineers by a group of his friends at the annual business meeting of the society, on December 3.

M. PAUL PAINLEVE, president of the French Chamber of Deputies, will retain his chair of mathematics at the University of Paris. He is now giving lectures at the university on two days a week.

B. D. SAKLATWALLA, of the Vanadium Company of America, will be presented with the Grasselli Medal at a meeting of the American Section of the Society of Chemical Industry in December.

PRESIDENT L. H. BAEKELAND, of the American Chemical Society, appointed Atherton Seidell as the society's delegate at a meeting of the Netherland Chemical Society and the Netherland Society of Chemical Industry, held on October 25, 1924, to commemorate the fiftieth anniversary of the foundation of stereochemistry by Van't Hoff and Le Bel.

DR. WILLIAM M. JARDINE, president of the Kansas Agricultural College, has been appointed by President Coolidge an additional member of the agricultural commission.

HOWARD M. GORE, of West Virginia, has been appointed by the president to be secretary of agriculture to succeed the late Henry C. Wallace. Mr. Gore, who has been acting secretary since the death of Mr. Wallace, wlil serve until March 4, when he becomes governor of West Virginia.

J. A. CARROLL, fellow of Sidney Sussex College and Isaac Newton Student of Cambridge University, has been appointed assistant director of the Solar Physics Observatory, at Cambridge, in succession to E. A. Milne, appointed professor of applied mathematics at the University of Manchester.

DR. FRIEDRICH PASHEN, director of the Institute of Physics of the University of Tübingen, has been appointed president of the National Institute of Physical Technology, Berlin.

THE Pasteur Institute in Paris has instituted a section of soil bacteriology with S. Winogradsky, for-

merly director of the Institute of Experimental Medicine in Petrograd, in charge.

Guy C. Robinson, formerly employed as research chemist for the United Bakeries Corporation at Chicago, has been made director of the department of research and analysis of that organization.

Oscar R. Smith has resigned as chief chemist for the Atlas Steel Corporation, of Dunkirk, N. Y., and is now testing engineer and chief chemist with W. B. Coleman and Company, of Philadelphia, Pa.

The Hammermill Paper Company has renewed its fellowship at Yale University to John L. Parsons, for the session 1924–25, in order to enable him to complete his studies on oxy-cellulose under the guidance of Professor Harold Hibbert.

Ernest H. Volwiler has been elected chairman of the Chicago Section of the American Chemical Society, to succeed Gerald L. Wendt, who resigned to become dean of the School of Chemistry and Physics at Pennsylvania State College.

The Rockefeller Foundation gave a dinner on November 18 at the Commodore Hotel, New York, to forty-eight physicians and scientific men of New York and European countries. Dr. J. A. Ferrell, director for the United States of the International Health Board of the Rockefeller Foundation, presided, and John D. Rockefeller, Jr., made a brief address. The guests of honor were Dr. Thorvald Madsen, president of the Health Commission, League of Nations; Dr. G. Tryde, director of the State Board of Health of Denmark; Dr. H. M. Gram, chief medical officer of the Health Department of Norway; Dr. L. S. Fridericka, professor of hygiene at the University of Copenhagen; Dr. Andreas Diesen, assistant director of the Health Department of Christiania, Norway; Dr. A. V. Hill, Jodress professor of physiology at University College, London.

Dr. George H. Simmons, of Chicago, who is traveling in England, was entertained at a dinner at the Oriental Club in London on October 20, by Dr. Aldo Castellani. He also was the guest of honor at the annual council dinner of the British Medical Association on October 22. Dr. Simmons has left for India, where he expects to stay until March.

Dr. H. M. Gram, chief medical officer of the Health Department of Norway, and Dr. Emile Brumpt, of the Academy of Medicine of Paris, are visiting the United States as guests of the International Health Board of the Rockefeller Foundation.

Professor T. Rafalski, who is in charge of the forestry department of one of the universities of Poland, has been making an inspection tour of the Adirondacks, for the purpose of studying New York State's methods of forest protection work.

Dr. Filippo Silvestri, of the Agricultural School at Portici, Italy, has been appointed entomological explorer for the California Agricultural Station, with headquarters in Hongkong, China, in connection with a search for beneficial insects to strengthen the biological control of injurious insects in California.

Dr. William W. Cort, of the School of Hygiene and Public Health of Johns Hopkins University, delivered a series of lectures recently at the University of Illinois on research problems for the department of zoology. On November 10 he spoke on "Problems of the Orient for parasitologists"; on November 11 on "Hookworm investigations in China under the auspices of the International Health Board"; on November 12 on "Parasites and parasitic diseases in China." The lectures were illustrated and embodied the results of Dr. Cort's sabbatical year in China as lecturer at the Peking Union Medical College and special investigator for the International Health Board.

Dr. William J. Mayo will speak at the University of Michigan on December 5, as the first speaker of the endowed lecture course which he gave the university last June.

Dr. Arthur L. Day, director of the Geophysical Laboratory of the Carnegie Institution, Washington, gave an illustrated lecture entitled "Some causes of volcanic action," before the Columbia University Chapter of the Sigma Xi, on November 19.

Dr. Emery R. Hayhurst, professor of hygiene, Ohio State University, Columbus, delivered the De-Lamar lecture at the Johns Hopkins School of Hygiene and Public Health, November 3, on "The occupational aspects of common disabilities."

The regular meeting of the California section of the American Chemical Society occurred on October 3, when Professor G. N. Lewis, of the University of California, addressed the members, his subject being "The molecule as a magnet." A special meeting was held by the section on October 11, on which occasion Dr. E. C. C. Baly, professor of inorganic chemistry at the University of Liverpool, spoke on "Photosynthesis of naturally occurring compounds."

Dr. John I. Hunter, professor of anatomy, University of Sidney, Australia, lectured under the joint auspices of the department of anatomy of the University of Chicago, and the Institute of Medicine of Chicago, on November 10, on "The anatomy and physiology of the sympathetic nerve supply of striated muscle."

W. H. Emerson, Ph.D. (Johns Hopkins), dean of the Georgia School of Technology and professor of

chemistry, connected with the institution since 1888, has died at his home in Atlanta, aged sixty-five.

A. M. BURROUGHS, assistant professor of horticulture in the College of Agriculture at the University of Missouri, was killed in an automobile accdient on September 8.

DR. JOSEPH MOELLER, emeritus professor of pharmacognosy in the University of Vienna, died on October 4, aged seventy-seven years.

DR. D. VAN DUYSE, professor of pathologic anatomy, University of Ghent, and author of works on embryology, ophthalmology and anatomy, has died.

DR. WILLIAM ROSTER, professor of geology at the University of Geneva, has died at the age of sixty-eight years.

DR. BERGONIE, roentgenologist of Bordeaux, France, recently died from burns received in the pioneer days of X-ray experimentation.

SHORTLY after the death of Sir William Macewen, as we learn from the *British Medical Journal*, a committee was formed at a meeting held in Glasgow to promote a fitting memorial to his life and work. At this preliminary meeting, which was attended by representatives of the University of Glasgow, of the British Medical Association, by many of Sir William Macewen's old assistants and students, and by numerous members of the medical profession, an executive body representative of different interests was appointed. It has now been decided that the fund should be applied to three main purposes, in the following order: (1) The provision of a bust of Sir William, by a sculptor of eminence, with a replica for Sir William's family; it is intended that the bust shall be placed in the university. (2) The establishment of a memorial lecture, to be known as "The Sir William Macewen Lecture," to be delivered annually or biennially; it is intended that it should be not merely a memorial oration, but should deal with any branch or aspect of surgical science. (3) The foundation of a Macewen medal or prize in surgery, to be awarded annually; it has not been decided yet whether this shall be assigned to the class of surgery at Glasgow University or shall be given a wider application. The committee aims at obtaining a fund amounting to £3,000, and towards this about £1,000 has already been received.

THE United States Civil Service Commission announces the following open examinations: December 10, scientific aid to fill vacancies in the Bureau of Standards, at an entrance salary of $1,500 a year; December 16, junior mathematician to fill vacancies in the Coast and Geodetic Survey, at an entrance salary of $1,860 a year; January 7, junior physicist to fill vacancies in the Bureau of Standards, at an entrance salary of $1,860 a year.

THE executive committee of the Chemical Society of Washington has authorized the appointment of a committee on chemical education. The functions of this committee will be: (a) To prepare a recommendation regarding the best procedure to organize the chemical teachers of Washington and vicinity. (b) To discuss such plan with the executive committee and the local section of the American Chemical Society on November 13, the annual meeting of the society. (c) To take proper steps to put the approved plan into effect. The committee consists of L. W. Mattern, McKinley High School, *Chairman;* James F. Norris, National Research Council; Charles E. Munroe, Bureau of Mines; G. L. Coyle, Georgetown University; Elizabeth R. Gatch, Central High School; N. E. Gordon, University of Maryland, and Frank Suter, Eastern High School.

DR. W. A. ORTON, formerly pathologist in charge of the office of cotton, truck and forage crop disease investigations, Bureau of Plant Industry, U. S. Department of Agriculture, resigned this position on November 1, to accept appointment as scientific director and general manager of the Tropical Plant Research Foundation, with headquarters at Washington, D. C. Announcement is also made of the following appointments in the Tropical Plant Research Foundation, to conduct research work on sugar cane problems in Cuba: Professor D. L. Van Dine, entomologist, formerly specialist in extension entomology, Pennsylvania State College; Dr. James A. Faris, pathologist, formerly national research fellow at the Brooklyn Botanic Garden; Dr. R. V. Allison, chemist and soil biologist, formerly engaged in post-doctorate study at Rothamsted, England; Mr. C. F. Stahl, assistant entomologist, formerly assistant entomologist, Bureau of Entomology, U. S. Department of Agriculture, and Dr. Marion N. Walker, assistant pathologist, formerly junior pathologist, office of cotton, truck and forage crop disease investigations, Department of Agriculture.

THE Society of American Bacteriologists will hold its annual meeting this year in Washington, D. C., on December 29, 30 and 31. The morning meeting on December 29 will be a joint session with Section N of the American Association for the Advancement of Science.

A STATE museum conference was held at the Milwaukee Public Museum on November 17 and 18 to organize a Wisconsin State Museum Association. The conference was called by Charles E. Brown, curator of the State Historical Museum, Madison; Dr. S. A.

Barrett, director of the Milwaukee Public Museum; Dr. George L. Collie, curator of the Logan Museum at Beloit College; Ralph N. Buckstaff, secretary of the Oshkosh Public Museum, and Arthur C. Neville, superintendent of the Green Bay Public Museum. About 60 Wisconsin museums of various kinds were represented, including state museums, city museums, county museums, college and state normal museums. The association will be along the same line as those in New England, New York and other states, and will be affiliated with the American Association of Museums. The program included demonstrations by the Milwaukee Museum of ways of collecting, installing and recording material. The two principal speakers were Lawrence E. Coleman, secretary of the American Association, New York City, and Professor Fay Cooper Cole, who is giving a course in museum methods at the University of Chicago.

EIGHT new mountains have been found and ascended in the Cariboo Range of British Columbia by Professor R. T. Chamberlin, of the University of Chicago's department of geology, and Allen Carpe, of New York, who have recently returned from Canada. One of the mountains is among the highest in the Canadian Northwest. They also located the headwaters of the Thompson and Canoe Rivers, and they are the first white men ever to note the glacial sources of these two mountain streams. They camped on the rocks as high as 10,000 feet, using a special powder for fuel.

The Experiment Station Record states that a decree authorizes the establishment in the State of Rio Grande do Sul of a central agricultural experiment station to supplant three small stations at Bagé, Alfredo Chaves and Caxias. The new station will have sections devoted to the culture of wheat, oats, barley, flax, sugar and oil-bearing seeds. Another decree of the same date provides for the establishment of a similar station at Ponta Grossa in the State of Paraná to study and give practical demonstrations regarding the cultivation of wheat, rye, oats, barley and flax. The new stations will be located in the center of the best cereal district of Brazil, and illustrate the policy of the government to stimulate cereal production. At the present time, wheat and wheat flour are among the most important imports, wheat production having been practically at a standstill for several years and negligible in quantity. Special efforts are also being made to increase the production of barley, rye and oats.

UNIVERSITY AND EDUCATIONAL NOTES

BY the will of the late Ellis Wainwright, of St. Louis, Washington University will receive the residue of his estate, which it is estimated will amount to approximately $600,000.

MR. AND MRS. GEORGE W. TODD have given to the University of Rochester $100,000, bringing the contributions to the university's proposed $10,000,000 fund to $3,845,998.23.

GROUND has been broken at Columbia University for buildings for the departments of physics and chemistry. Actual erection will start in December or January. The nine-story $900,000 chemistry building, primarily devoted to laboratories, will house the offices of the dean and professors and a few class rooms. The $1,250,000 physics building will have twelve stories with an observatory on the roof for students of astronomy.

DR. JOHN H. MUSSER, JR., assistant professor of medicine at the University of Pennsylvania School of Medicine, Philadelphia, has been appointed professor and head of the department of medicine at Tulane University School of Medicine, to succeed Dr. George S. Bel, resigned.

DR. H. C. GEORGE, who recently resigned from the United States Bureau of Mines, has been appointed professor of petroleum engineering at the University of Oklahoma. The subject of petroleum engineering will rank with other major engineering courses in the university.

DR. H. N. CALDERWOOD, JR., has been appointed assistant professor in chemistry at the University of Wisconsin, in place of Dr. Glenn S. Skinner, who has resigned.

PROFESSOR RUDOLF PUMMERER, of the University of Greifswald, has been called to the chair of chemistry in the University of Erlangen, vacant by the retirement of Professor Otto Fischer.

DRS. HARUO HAYASKI and Kenzo Sudo have been appointed deans of the Tokyo Imperial University Medical College and the Kanazawa Medical College, respectively.

DISCUSSION AND CORRESPONDENCE

A MISLEADING DESIGNATION

A RECENT number of the "Public Health Reports" (May 9, 1924, page 1074) contains a report of a case of *Dibothriocephalus latus* (*Diphyllobothrium latum*). To the scientific name is appended in the text as a popular designation the name of Broad Russian Tapeworm under which alone the parasite is listed on the cover. While this popular designation is not new it does not seem to have gained wide currency and before it should become incorporated into the literature as an accepted common name I wish to record a protest against its use.

The older authors have all of them referred to this well-known species either as the fish tapeworm or broad tapeworm of man and it is so recorded in all American literature until relatively recent times. Corresponding terms are also utilized by various authors in European languages, and it is unfortunate that any one should regard it necessary to make a change from these two early descriptive names which have been so widely introduced and under which this species is generally so well known. For many reasons, geographic names are not advisable designations for species and the one utilized here is distinctly open to criticism on all the grounds that may generally be urged against such designations as a whole.

The designation is in the first place incorrect since the species in question is well known to have almost a cosmopolitan distribution. It is to be sure limited by certain dietetic relations, *viz.*, the consumption of fish, which varies widely but is definitely connected with the proximity of water bodies yielding a fish food supply that is utilized by a considerable percentage of the adjacent population. Ordinarily the species is listed as common around the Baltic and North Seas and around certain inland water bodies. Many cases on record come from Scandinavia, Switzerland, France, Japan and from the German Baltic provinces as well as from other Baltic provinces which for the most part are now independent and not included in Russia. Consequently such a designation for this species as Russian is scientificaily misleading.

One might also rightly object to geographic terms since the species in question has no relation whatever to the nationality involved in the name. Earlier views regarding racial immunity or susceptibility to helminthologic infection have been shown to be largely if not entirely incorrect. Proper consideration for international relations as well as for the scientific factors involved would hence naturally lead to the elimination of such a term and to the utilization of one free from the unfortunate connotation.

Of all the cases of the broad tapeworm on record in this country the large majority are reported from Scandinavians, Germans, Finns and the parasite is in no wise definitely related to the Russians. It is to be hoped that a designation thus definitely misleading may be avoided by writers in future.

HENRY B. WARD

UNIVERSITY OF ILLINOIS

ULTRA-VIOLET LIGHT AND THE ANTI-NEURITIC VITAMIN

IN recent numbers of SCIENCE and elsewhere observations have been recorded indicating an intimate connection between the antirachitic property of foodstuffs and ultra-violet radiation. Especially in view of the finding that foodstuffs may be rendered antirachitic by ultra-violet radiation, it may be of interest to record the result of an experiment performed a year ago in connection with the effect of ultra-violet light on the antineuritic food factor. In this case it was found that the antineuritic factor was destroyed completely by radiation for a few hours of an aqueous yeast extract which was exposed to the rays of a quartz mercury arc lamp in a layer 2–3 mm deep. Both the irradiated and non-irradiated extract were tested by feeding to pigeons otherwise maintained on a white rice diet.

R. R. WILLIAMS

ROSELLE, NEW JERSEY

STIMULATION OF SPORE GERMINATION BY CO_2

DURING a study of Basisporium dry rot of corn, it was found difficult to germinate the spores of the causal organism, *Basisporium gallarum*, in the usual water drop cultures. The spores of the fungus germinated poorly or not at all when placed in drops of water and held at optimum temperature. In the presence of plant tissue, however, where such tissue is not in contact with the culture drop, profuse germination takes place. Brown[1] described this phenomena in connection with his studies on spore germination but offered no definite explanation of it.

In the case of *B. gallarum* the stimulating effect is produced not only by aromatic fruits and flowers but by leaves and green stems or any fresh cut plant tissue. The general effect of plant tissues suggested carbon dioxide as a possible agent in the stimulation of spore germination. This assumption was strengthened by failure of the spores to germinate in the same chamber with plant tissues if barium hydroxide solution in sufficient amounts was also present. Moreover, while air passed over cut plant tissue, introduced into the same chamber with the spores, strongly stimulates germination, if passed through barium hydroxide before entering the spore germination chamber, no germination results. In all cases where barium hydroxide was used with plant tissue, a heavy precipitate of the carbonate was produced.

The agency of CO_2 in the stimulation of germination of the spores of *Basisporium gallarum* was further demonstrated by the use of washed CO_2 from a generator. The gas in small amounts, from 1 to 5 per cent., stimulated the spores in water drop cultures to profuse germination, while control cultures failed to germinate.

L. W. DURRELL

IOWA AGRICULTURE EXPERIMENT STATION,
AMES, IOWA

[1] Brown, William. "Studies in the physiology of parasites," IX, 1922, *Ann. Bot.*, 36, 285–300.

FALL OF A METEORITE IN MINNESOTA

THE following account of the fall of a meteorite near Parker's Prairie, Minnesota, was obtained from eye-witnesses.

On Thursday, July 17, about noon, between 12:15 and 12:30, Mr. C. U. Carlson and family, together with his neighbor, Mr. T. W. Sterriker, were at the dinner table near a double window facing the north, when an "awful explosion" was heard, and looking out of the window they saw through the trees the water in the small shallow lake about 300 feet away splash to a height of forty or fifty feet. The boys and Mr. Sterriker rushed out and observed the high waves which formed a "cross bar" effect out about seventy-five feet from shore. This effect was evidently due to wave interference, as the fall occurred in a small bay.

The fall was also seen from a point on the opposite side of the lake, about a quarter of a mile away, by Mr. Sterriker's seven-year-old daughter, who thought it was an aeroplane. She described it as coming from the west or northwest.

The witnesses agree that there was bluish smoke and steam formed over the lake by the fall, both of which drifted quickly away in the southwest breeze.

Mr. Carlson's farm is in Ottertail County, Section 10, T. 131 N, R. 37 W.

During the days and evenings immediately following the fall, several men enthusiastically spent hours trying to find the meteorite without success. The writers spent the afternoon of August 9 prodding the thick mud from the end of a rowboat, with a long steel rod, with no better luck. The water is low, its surface being about five or six feet above a sand hard pan in the locality of the fall. Over the bottom of the lake basin is a layer of soft mud from three to five feet deep.

WILLIAM O. BEAL
GEORGE A. THIEL
THE UNIVERSITY OF MINNESOTA

SCIENTIFIC BOOKS

L'Hérédité. By E. GUYÉNOT, Paris, Doin, small 8vo, 463 pp., 1924. *Heredity and Eugenics.* By R. R. GATES, New York, MacMillan, 288 pp., 1924. *Outline of Genetics, with special reference to plant material,* M. C. COULTER, Chicago, University of Chicago Press, 211 pp., 1924.

THE modern science of genetics, now rounding out its first quarter of a century, has brought out such an astonishing array of new facts that the need of text-books and general treatises, which shall render this new knowledge available for schools and the general reader, has become obvious. We have them now in most of the European languages. In Germany, besides Baur's work written from the botanical standpoint, there is the new "Einführung" of Goldschmidt. Scandinavia has several small treatises. The French have built the new facts into their temple of science very slowly, waiting to be shown that they will weather the disintegrating tendencies of further critical work. Now we have in the "Bibliothèque de Biologie générale," which Professor Caullery is editing, a book on genetics in which Lamarck's name is hardly mentioned, and the inheritance of acquired characters is not referred to except to ridicule it. This is Guyénot's book "L'Hérédité." Starting with the view that heredity is a broader topic than Mendelian crossing, the author, after a brief introduction, discusses in three livres the laws of hybridization, the chromosome theory of heredity and Mendelian anomalies and problems of heredity (including human heredity). The facts of modern genetics comprised in these three parts are familiar enough to American geneticists. They are set forth in the brief and clear style characteristic of the best French professors. In one respect the author takes a broader view than some in insisting that both cytoplasm and nucleus cooperate and interact in heredity; although we are ignorant of just how. The author denies that we possess a sufficient comprehension of the mechanism of heredity.

The text-book of Gates is somewhat different from Guyénot's and very different from the classic treatise of Bateson or the text-book of Punnett, to mention only his own countrymen. He states in the preface that he was impelled to write the book by his interest in eugenics and, accordingly, except for two introductory chapters on heredity in general, the book is devoted to abstracts of the literature of discoveries in the fields of physical and mental characters of man, closing with a chapter on social and world aspects of eugenics. In the latter chapter is a discussion of miscegenation and problems of population. As indicated above the body of the book comprises abstracts of scores of papers, classified under the various topics, with frequent reference to findings in other vertebrates. While the data are compiled with no little skill, still the result is not all it might be in two respects, *viz.,* completeness of acquaintance with the vast literature and criticalness in working over that literature. But, doubtless, it may be maintained with much reason that it is still too early, because of incompleteness of data, to write a critical and philosophical history of human heredity.

The text-book of Coulter is, unlike the others considered in this review, chiefly limited to a particular kind of material, namely, plants and mostly the

higher plants. However, the author has become more catholic in the selection of materials in this revision than in the original edition of "Plant Genetics." That title he recognizes as too narrow, inasmuch as "the fundamental principles of inheritance are the same in the two groups of organisms" and "it is necessary to use many of the results of animal investigation." The book is designed to be used as an elementary text, yet is provided with material for advanced students. It is one of the first elementary texts that has been issued; the "essentials" reduced to 200 pages. It is accompanied by numerous new diagrams. Altogether it is clearly the work of a teacher with hereditary capacity and long experience and will do much to help train a new generation of genetical students. As compared with Castle's "Genetics and Eugenics" (of which a new edition has just appeared) it is more of an elementary text rather than a compendium. It is less dominated by the author's viewpoint based on the personal researches of a lifetime; it lays more stress on plants and does not consider human material at all.

C. B. DAVENPORT

COLD SPRING HARBOR, N. Y.

SCIENTIFIC APPARATUS AND METHODS

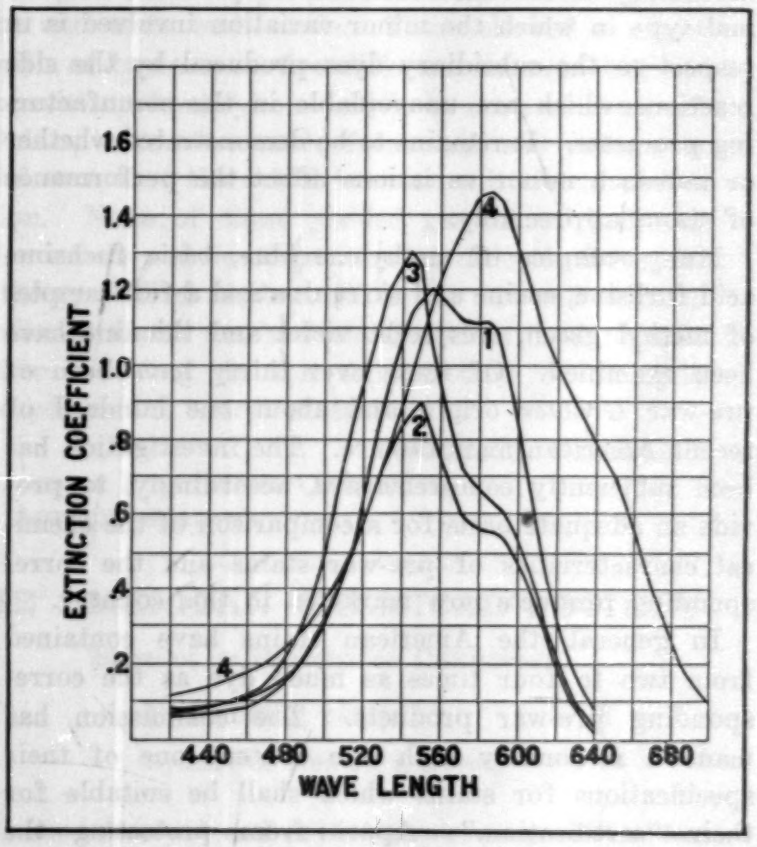
THE INVESTIGATION OF BIOLOGICAL STAINS IN THE COLOR LABORATORY OF THE BUREAU OF CHEMISTRY[1]

THE chemical investigation of stains in the Color Laboratory is undertaken in cooperation with the Commission on Standardization of Biological Stains, of which one of the authors is a member.

In determining the dye content of samples, both the spectrophotometric method and titration with titanous chloride have given general satisfaction, while alternate methods of analysis have been developed in specific instances. In establishing the essential chemical character of samples or determining, so far as is possible, the identity and relative proportions of all coloring matters present in appreciable quantities, spectroscopic examination has proved particularly convenient and effective.

An examination of twenty-five samples of basic fuchsine showed a wide range of chemical variation, attributable to differing views of manufacturers as to the relative effectiveness of the three basic fuchsines listed by Schultz for general or specific application. The relative degree of methylation of these dyes constitutes the principal factor of chemical variation for the determination of which reliable spectrophotometric methods have been developed. Collaborative investigations of the staining characteristics of a variety of typical fuchsines, of which the identity has been established in this manner, are now being undertaken. The results obtained in these tests should do much to dispel the present uncertainty as to the specific utility of the different constitutional types of the stain.

The preliminary examinations of the samples of cresylecht violet used by Williams in his investigation on the staining of tissues,[2] and of another sample of Grübler product proved illuminating. The Grübler stains contained variable proportions of a red and of a violet dye, whereas the same violet dye, free from admixture with other dyes, was present in the American stain. It was clearly demonstrated that the effective staining agent in the application of the stain made by Williams was the violet dye. It re-



CRESYLECHT VIOLET

(1) = Williams' original Grübler stain—100 mg. dye per liter.

(2) = Williams' second Grübler stain—100 mg. dye per liter.

(3) = A third Grübler stain —100 mg. dye per liter.

(4) = Williams' American (No. 1197)—100 mg. dye per liter.

Solvent = buffered aqueous sol. (pH 6.5) 1 cm. layer.

[1] 98th contribution from the Color Laboratory, Bureau of Chemistry, Washington, D. C.

[2] *J. of Lab. and Clin. Med.*, Vol. VIII, No. 4, January, 1923.

mains for further investigation to determine whether the red dye, which is the principal constituent of the imported products examined, is of use in any connection.

Between forty and fifty samples of methylene blue have been examined. The great majority have proved to be of normal chemical type. In a number of instances, however, the presence of considerable quantities of dyes other than methylene blue was established. The spectrophotometric evidence indicated that such products were probably prepared from methylene blue by treatments similar in type but milder in degree than those employed in the manufacture of certain American methylene violets and azures. Since these products have proved to be excellent stains, the determination of the constitution of the component dyes and their preparation in a pure state will be undertaken as opportunity is afforded.

The most difficult phase of the work before the laboratory is the differentiation of products of normal type in which the minor variation involved is in respect to the subsidiary dyes produced by the side reactions which are unavoidable in the manufacturing processes. It remains to be demonstrated whether or not such minor variations affect the performance of stains appreciably.

Many samples of methylene blue, basic fuchsine, acid fuchsine, eosine and safranine and a few samples of methyl green, cresylecht violet and thionine have been examined. Of these over thirty have been of pre-war *Grübler* origin and about one hundred of recent American manufacture. The investigation has been sufficiently comprehensive, accordingly, to provide an adequate basis for a comparison of the chemical characteristics of pre-war stains and the corresponding products now marketed in this country.

In general, the American stains have contained from two to four times as much dye as the corresponding pre-war products. The commission has made a reasonably high dye content one of their specifications for stains which shall be suitable for their "certification." Apart from protecting the economic interests of purchasers, such specifications will promote uniformity in performance.

Although it has not been considered necessary to carry out a systematic determination of the insoluble matter in the stains examined, it has been noted repeatedly that pre-war stains contained quantities of insoluble residue (principally tarry material) which were abnormal, even if the deficiency in dye content was not taken into consideration.

Several pre-war stains contained dyes of types which precluded the possibility of natural origin in the manufacture of the stain, in quantities which were too large to have resulted from accidental contamination in mixing and grinding and too small to make it probable that they were added with the intention of modifying the staining characteristics of the stain. Since products of this type are of frequent occurrence in textile dyes, with which it is of the greatest importance to maintain precise standard shades, the conclusion that the stains in question were prepared from textile products appears warranted.

Large proportions of auramine were found in two pre-war safranines and large proportions of fluoresceine in two pre-war eosines. Several pre-war methylene blues were of the abnormal character to which reference has already been made. In each instance the labeling of these mixtures was identical with that of other pre-war products of normal chemical characteristics. The propriety of marketing mixtures of dyes may be questioned, unless their components are not available in relatively pure form. The label should invariably warn customers of the character of such products.

Many of the earliest stains of American origin were reasonably satisfactory, and the general improvement in the subsequent output has been marked. Most American manufacturers have given the commission active cooperation in its effort to develop superior products.

It is the aim of the commission to provide a certification of satisfactory stains (whether of American or foreign origin) which will insure products of relatively excellent and uniform chemical characteristics, as well as of tested performance. It is believed that such a certification will make feasible a corresponding standardization in technic and result in establishing biological staining on a more satisfactory basis.

JOSEPH A. AMBLER
WALTER C. HOLMES

COLOR LABORATORY,
BUREAU OF CHEMISTRY,
WASHINGTON, D. C.

SPECIAL ARTICLES

THE EFFECTS OF DISLOCATION OF THE EYE UPON THE ORIENTATION OF THE GOLDFISH

(Carassius Auratus)[1]

THE eye, the semicircular canals and the lateral line have been invoked by various biologists to explain the facile orientation of the fish. The following experiment was devised in order to determine, if possible, what part vision performs in this orientation. The eyes being normally in the lateral position, it was

[1] Preliminary Report from the Hull Physiological Laboratory of the University of Chicago.

thought that by placing them in different positions the orientation would be altered if indeed vision is an important factor.

Large goldfish (*Carassius auratus*) were chosen for the work because of their ready availability and unusual vigor. These animals were in excellent condition throughout the experiments.

An artificial orbit was made for the left eye in the top of the cranium just to the left of the midline by the use of a large dental drill. A narrow canal was cut through the bone connecting it with the natural orbit through which the nervous and vascular connections passed when the eye was slipped into its new orbit. In this way the eye may be readily dislocated within a few minutes without obvious injury to it or its connections.

No detectable abnormalities in the animal's behavior could be noticed. Its orientation and locomotion were unchanged. The right eye was removed a week later. We were thus able to produce a real experimental cyclops. For the first week its behavior was quite as before. After about the tenth day, however, the animal was observed to orient itself tilted a little toward the left side whether swimming or at rest. The tilting increased constantly during the next four weeks after which time it assumed a position with its dorsoventral axis 45° to the left of the vertical. The vision of the animal was regularly tested during this period and found to be very good. If a small rod was slowly moved toward the eye the animal quickly turned aside and avoided it constantly.

A photograph was taken of the animal at this time and the eye replaced in its own orbit. The following day the fish was swimming quite vertical without any observable tendency to tilt toward either side. Its vision and orientation were observed the following two weeks and no abnormalities observed. At no time during the experiment did the animal show any abnormalities other than the tilting; circus movements, etc. being entirely absent.

We feel justified, therefore, in concluding that the visual function is an important element in the normal orientation of this species, visual impulses being apparently able to counteract the controlling influence of the labyrinth.

J. FRANK PEARCY,
THEODORE KOPPÁNYI
UNIVERSITY OF CHICAGO

THE DECOMPOSITION OF SALICYLIC ALDEHYDE BY SOIL ORGANISMS[1]

THIS aldehyde was obtained from several plants, *e.g., Spirea ulmaria* and other species of Spirea by Pagenstecher[2] in 1835. It was reported in *Crepis foetida* by Wieke in 1856. It is formed by the oxidation of salicon which occurs in willow (Salix) and bridal-wreath (Spirea).

Salicylic aldehyde was first isolated by Shorey[3] from the garden soils of the Mount Vernon estate, and later found in widely separated soils by Schreiner and Skinner.[4] They found that this aldehyde is injurious to wheat plants. Ten parts per million in solution cultures caused a reduction of growth of 31 per cent. in the first six days. The plants were killed in solutions containing 50 parts per million. Other crops were affected similarly, though in some instances higher concentrations were necessary to cause injury. In soil cultures 25 parts per million of salicylic aldehyde was injurious to wheat seedlings.

In order to determine the ability of soil organisms to decompose salicylic aldehyde 27 pairs of cultures were prepared with the usual precautions. After incubating at room temperature for two weeks observations and tests were made. These showed a slight growth of bacteria in five different cultures, but decomposition of salicylic aldehyde in none of them.

Sub-cultures were made from each soil culture to make sure that there had been no mistake in observation. None of these yielded growth of bacteria, and none showed decomposition of salicylic aldehyde. In the growth of the bacteria in the few soil cultures mentioned above the bacteria doubtless used organic matter contained in the soils instead of salicylic aldehyde as the source of carbon.

WRIGHT A. GARDNER
ALABAMA POLYTECHNIC INSTITUTE,
AUBURN, ALABAMA

[1] Published with the permission of the director of the Alabama Experiment Station.

[2] Pagenstecher, Report, *Pharm.*, 49, 337, 51, 364.

[3] Shorey, E. C., "Some organic soil constituents," Bulletin 88, 13 pp., *Bureau of Soils*, 1913.

[4] Schreiner, O., and J. J. Skinner, "Occurrences of aldehydes in garden and field soils," *Journal Franklin Institute*, 329–343, September, 1914.

THE AMERICAN CHEMICAL SOCIETY

SECTION OF HISTORY OF CHEMISTRY

F. B. Dains, *chairman*

Lyman C. Newell, *secretary*

The one hundred and fiftieth anniversary of the discovery of oxygen: EDGAR F. SMITH. (Note: Dr. Smith was unavoidably absent. The secretary read Priestley's account of the discovery of oxygen from an original copy of "Experiments and Observations on Air," Vol. II, pages 33–35, and emphasized the importance of this discovery to American chemistry by reading an ex-